

This application is a Continuation-in-Part of Application:

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5 Title: Hair Clipper With Pivoting Clipper Head Assembly

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BACKGROUND OF THE INVENTION

10 1. Field of the Invention

The present invention relates to hair clippers. More particularly, the present invention relates to a hair clipper having a pivoting clipper head assembly.

15 2. Description of the Prior Art

Electric hair clippers having a stationary blade and a reciprocating blade are known in the art. The stationary blade and the reciprocating blade each have a plurality of teeth along the leading edge of the blades. The blades are mounted to the clipper such that the teeth of the stationary blade are substantially parallel to the teeth of the reciprocating blade. In this manner, reciprocating the reciprocating blade with respect to the stationary blade trims hair positioned between the teeth.

Electric nose and ear hair clippers are also well known in the art. Various types of these personal clippers have been developed over the years to improve the ease and effectiveness of trimming unwanted hairs growing within nasal and ear cavities. Most of these devices have focused on the cutting assembly. For example, U.S. Patent No. 5,012,576 describes a device having a cutting head attached to a rotatable shaft with blades that are angled to provide a fan-like action when rotated. Other examples of personal clippers with unique cutting assemblies include U.S. Patent No. 6,151,785,

U.S. Patent No. 4,958,432, U.S. Patent No. 4,868,984, U.S. Patent No. 3,965,569, U.S. Patent No. 3,925,888, and U.S. Patent No. 3,699,652.

Cutting assemblies for both conventional hair clippers and nose and ear hair clippers have been typically mounted to the end of an elongated, essentially tubular housing. Accordingly, a user must maneuver the clipper to various angles to optimally position the cutting assembly to effectively and efficiently cut the hard to reach hair surface areas of a user. Thus, it is desirable to provide a hair clipper that permits adjustment of the blade assembly with respect to the handle to better enable the user to position the blade assembly to more easily and effectively reach and maneuver the device with respect to the hard to reach hair surface areas of the user.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a hair clipper having a pivoting clipper head.

It is another object of the present invention to provide a clipper having a clipper head assembly that is pivotable about an axis of rotation that is perpendicular to the handle.

It is a further object of the present invention to provide a hair clipper having up to five, discrete positions for the clipper head.

These and other objects and advantages of the present invention are achieved by the hair clipper of the present invention. The hair clipper includes a main body having a distended lower portion forming a handle and a distended upper portion, or clipper head, pivotally connected to said handle by one or more connectors. The handle has two laterally opposed arms forming a Y-shaped groove for receiving the pivoting clipper head. The arms are connected to the clipper head by one or more connectors. The clipper head has a cutting assembly that extends from one end. The cutting assembly

can be any blade mechanism known for use with a conventional hair clipper or a nose and ear hair clipper.

DESCRIPTION OF THE FIGURES

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Fig. 1 is a first plan view of the clipper of a first embodiment of the present invention;

Fig. 2 is a second plan view, opposite the first plan view of the clipper of Fig. 1;

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Fig. 3 is an exploded view of the clipper of Fig. 2;

Fig. 4 is a first plan view of a second embodiment of the clipper of the present invention showing a alternate cutting assembly;

Fig. 5 is a first side view of the clipper of Figs. 1 and 4 showing the clipper head in its first position;

Fig. 6 is the first side view of the clipper of Figs. 1 and 4 showing the clipper head in its second position;

Fig. 7 is the first side view of the clipper of Figs. 1 and 4 showing the clipper head in its third position;

Fig. 8 is the first side view of the clipper of Figs. 1 and 4 showing the clipper in its fourth position; and

Fig. 9 is the first side view of the clipper of Figs. 1 and 4 showing the clipper head in its fifth position.

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DETAIL DESCRIPTION OF THE INVENTION

Referring to the figures and particularly to Fig. 1, a nose and ear clipper generally represented by reference numeral 10, is shown. Clipper 10 preferably has a handle portion 20 and a cutting head assembly 50.

In a first, preferred embodiment of clipper 10 shown in Fig. 1., the clipper is a rechargeable clipper. In this embodiment, handle 20 houses a motor 30 and a battery 35 shown in Fig. 2.

Referring to Fig. 2, handle 20 preferably has an on-off switch 22, a plug 24, and a recharging indicator 26. Switch 22 preferably has an on position, an off position, and a lock feature. Motor 30 is preferably operatively connected to battery 35 when switch 22 is in the on position. Battery 35 is preferably operatively connected to plug 24 and recharging indicator 26 when switch 22 is in the off position. In operation, when switch 22 is placed in the on position, power flows from battery 35 to motor 30. Further, when switch 22 is in the off position, battery 35 is operatively connected to plug 24 and recharging indicator 26 such that the plug 24 when connected to a standard household electrical outlet delivers power to recharge the battery and to operate recharging indicator 26. Still further, the locking feature of switch 22 is preferably used to lock the switch into either the on position or off position as desired. Indicator 26 has a first state when battery 35 is recharging and a second state when the battery is fully recharged.

In this embodiment shown in Fig. 2, indicator 26 is preferably a light emitting diode or LED 27. LED 27 has a first on or illuminated state and a second off state. In use, LED 27 is preferably illuminated when battery 35 is recharging and the LED is off when the battery is fully recharged.

In an alternative embodiment of clipper 10 (not shown), the clipper is not rechargeable. In this alternative embodiment, handle 20 preferably houses motor 30. Motor 30 is operatively connected to plug 24 when switch 22 is in the on position. In

operation, switch 22 is placed in the on position to cause power to flow to motor 30 from a standard household electrical outlet connected to a power cord, not shown, which is connected to plug 24.

Referring to Fig. 3, clipper head 50, similar to prior art conventional hair clippers, includes stationary blade 55 and reciprocating blade 57. Blade 55 and blade 57 each have a plurality of teeth 60 along the leading edge of the blades. Blade 55 and blade 57 are mounted to head 50 such that teeth 60 of blade 55 are substantially parallel to teeth 60 of blade 57 forming a cutting edge 61. Motor 30 is operative coupled to reciprocating blade 57 to reciprocate blade 57 back and forth perpendicular to the longitudinal axis of handle 20. Thus, hair placed within teeth 60 is trimmed as blade 57 reciprocates with respect to blade 55.

Referring to Fig. 4, clipper head 50, similar to prior art nose and ear hair clippers, preferably has a cutting assembly 90 including, a concentric outer stationary blade 92 with a series of circumferentially spaced notches 94, the side and bottom edges of which preferably provide a plurality of sharp shearing edges 95, and an inner cylindrical hub 96 with one or more blades 98 circumferentially spaced thereon. Preferably, hub 96 engages the end of a rotating, motor driven shaft 35 protruding from clipper head 50. Preferably, shaft 35 rotates about a central axis B.

Head 50, preferably, is mounted to handle 20 so as to permit the head to pivot about an axis or rotation A. Axis of rotation A is preferably perpendicular to the longitudinal axis of handle 20. Preferably, axis A is offset from cutting assembly 90 in the direction of handle 20. Head 50 is preferably mounted to handle 20 so as to permit motor 30 to reciprocate hub 96, via shaft 35, as the head pivots about axis of rotation A. Thus, clipper 10 enables the user to easily position cutting assembly 90 parallel to the cutting surface.

Referring to Figs. 3 and 4, handle 20 defines a pair of support arms 40 that preferably form a fork. Each arm 40 preferably has a connector 42 positioned along the

axis of rotation A. Head 50 preferably has a pivot point 59 positioned on opposite sides of the head also positioned along the axis of rotation A. Connectors 42 preferably are adapted to secure pivotally pivot points 59 of head 50 to handle 20. Thus, connectors 42 and pivot points 59 are adapted to enable clipper head 50 to pivot about axis of rotation A.

As shown in Figs. 5 through 9, connectors 42 and pivot points 59 are adapted to secure head 50 within handle 20 in one of several preset pivoted positions 70-1, 70-2, 70-3, 70-4 and 70-5, respectively. Each connector 42 preferably has a first gear 44 and a release button 46 and each pivot point 59 preferably has a second gear 64. First gears 44 are preferably connected to arms 40 so as to mesh with second gears 64 connected to head 50. Release buttons 46 are preferably adapted to extend first gears 44 into meshing relationship with second gears 64 and are adapted to retract the first gears from the meshing relationship with the second gears. Release buttons 46 preferably are adapted to normally mesh first gears 44 with second gears 64, thus securing head 50 in one of the preset plurality of pivoted positions. Depressing release buttons 46 unmeshes first gears 44 from second gears 64. With release buttons 46 depressed and first gears 44 unmeshed from second gears 64, head 50 is pivotable about axis of rotation A to another one of the preset pivoted positions.

It should be understood that the foregoing description is only illustrative of the present invention. Various alternatives and modifications can be devised by those skilled in the art without departing from the invention. Accordingly, the present invention is intended to embrace all such alternatives, modifications and variances that fall within the scope of the appended claims.